
Subject: Re: Again an FFT question

Posted by [Kenneth P. Bowman](#) on Thu, 28 Jun 2012 13:07:17 GMT

[View Forum Message](#) <> [Reply to Message](#)

In article <27bbd728-a65d-4925-bd54-d003cfad6493@googlegroups.com>, Helder <helder@marchetto.de> wrote:

> Thank you all for the answers. I guess the difference between changing sign
> of every second element and shift the array is due to a round-off error. This
> becomes clear when analyzing the differences between the two results using
> double precision or not.
> Thanks also for the explanation of how the frequencies in an FFT are
> displayed.
> I guess I'll have to update old code and remove the shift and use instead the
> center option.

I didn't plug it yesterday, but you might want to look at the chapter on FFTs in my book.

http://www.amazon.com/An-Introduction-Programming-IDL-Interactive/dp/012088559X/ref=sr_1_1?ie=UTF8&qid=1340888241&sr=8-1&keywords=idl+bowman

I used to center FFTs, but have gotten away from that. For real input data, the positive and negative frequencies are complex conjugates, so the negative frequencies are redundant and you can get all of the information by plotting only the positive frequencies.

For calculations in the spectral domain, such as filtering, I usually compute the frequencies (or periods) in dimensional units as a function of the transform array indices and use that. Then you don't have to remember to uncenter when transforming back.

Ken Bowman
<http://idl.tamu.edu/>
